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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/604,662	06/27/2000	Lawrence Kwong Lam	18180.0023	3684

7590

08/27/2002

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EXAMINER

TURNER, SAMUEL A

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 08/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/604,662

Applicant(s)

Lam et al

Examiner

Samuel A. Turner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 13 June 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

Office Action

Rejections Under 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 20 and 24 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Geary(4,747,688). See figures 1 and 2.

Rejections Under 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. § 103© and potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103(a).

Claims 1-6, 13, 14, 16, 17, and 21-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the prior art of figure 1 in view of Leuchs(5,172,185).

The prior art of figure 1 teaches an voltage sensor comprising a laser source(104), an integrated optics chip(100), and detector. The IOC includes a Mach-Zehnder interferometer and electrodes(110,112) matched to each arm of the interferometer. Not taught are the interferometer arm terminating at the edge of the IOC so as to produce an interference pattern on the detector, or a lens assembly positioned between the waveguide outputs and the detector.

Leuchs et al(5,172,185) teach an IOC sensor wherein the waveguides(3,4) terminate at the edge of the IOC so as to produce an interference pattern on the detectors(8). See figure 2. Note that the waveguides can intersect the edge of the IOC at other than 90°. The Leuchs waveguide output arrangement requires no output couplers, thus providing a reduction in parts.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the coupler output of the Figure 1 prior art with the simplified waveguide output, as taught by Leuchs, to reduce the number of parts on the IOC.

Claims 7-12, 15, 18, and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Leuchs et al(5,172,185) as applied to claims 1-6, 13, 14, 16, 17, and 21-23 above, and further in view of Geary(4,747,688).

Geary(4,747,688) teach the use of magnifying optics(18) that can be

positioned between the waveguide ends and the detector array(A,B). Note that one detector is positioned to detect the dark fringe.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a lens assembly between the waveguide ends and the detector array in order to magnify the size of the fringes. Other waveguide output coupling optics, such as prisms, lens, or a Rotman lens, can be used to couple the output fringe pattern to the detector array.

Response to Arguments

Applicant's arguments filed 13 June 2002 have been fully considered but they are not persuasive.

With regard to the rejection under 35 U.S.C. § 102(b) of Geary; both a dark fringe and a light fringe are used to produce an output signal. A interference pattern consist of a series of light and dark fringes which are also referred to as minima and maxima, or peaks and nulls. Geary detects the dark fringe or null of the interference pattern.

With regard to the 35 U.S.C. § 103(a) of claims 1-6, 13, 14, 16, 17, and 21-23 Leuchs does suggest that the output of two waveguides can be coupled together and the interference intensity measured with a single detector 12 (figure 2) or the light from each waveguide can be coupled out of the waveguide and interfered and the resultant interference pattern detected by a detector array 12 (figure 1). By applying this suggestion to applicant's prior art figure 1 the claimed limitations are

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met.

With regard to the 35 U.S.C. § 103(a) of claims 7-12, 15, 18, and 19 the addition of the magnifying optics(18) as suggested by Geary would have simply imaged the interference fringe pattern onto the detector array and magnified the fringes for easier detection.

Clearly it is not the prior art figure 1 where the suggestion to combine is found but in Leuchs and Geary.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire **THREE MONTHS** from the date of this action. In the event a first response is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than **SIX MONTHS** from the date of this final action.

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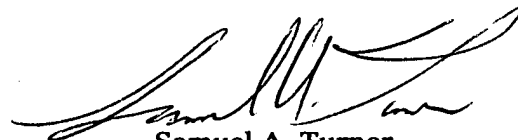
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel A. Turner whose telephone number is **(703) 308-4803**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font, can be reached on (703) 308-4881.

The fax phone number for this Group is (703) 308-7722. The faxing of papers related to this application must conform with the notice published in the Official Gazette, 1096 O.G. 30 (15 November 1989). The Group receptionist telephone number is (703) 308-0956.

Any inquiry of a technical nature regarding reissues, petitions, and terminal disclaimers should be directed to Ed Glick whose telephone number is (703) 308-4858, Hien Phan whose telephone number is (703) 308-7502, or Ed Westin whose telephone number is (703) 308-4823.

Any other inquiry of a technical nature, and all inquiries of a general nature including those relating to the status of this application or any patent term adjustment should be directed to TC2800 Customer Service Office whose telephone number is (703) 306-3329.



Samuel A. Turner

Primary Examiner

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SAT

August 17, 2002